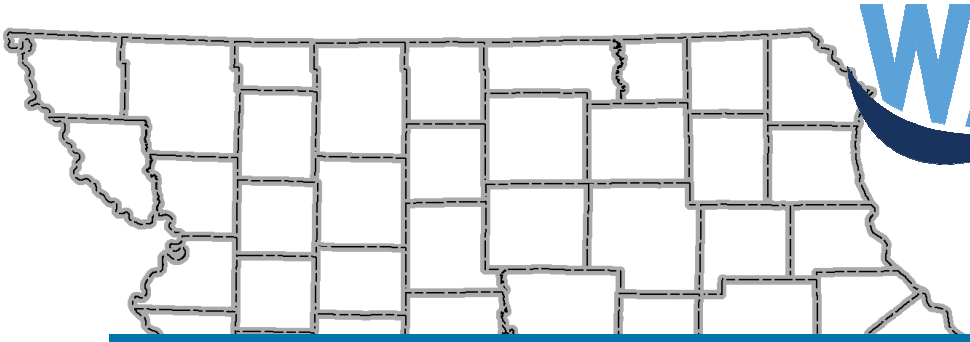
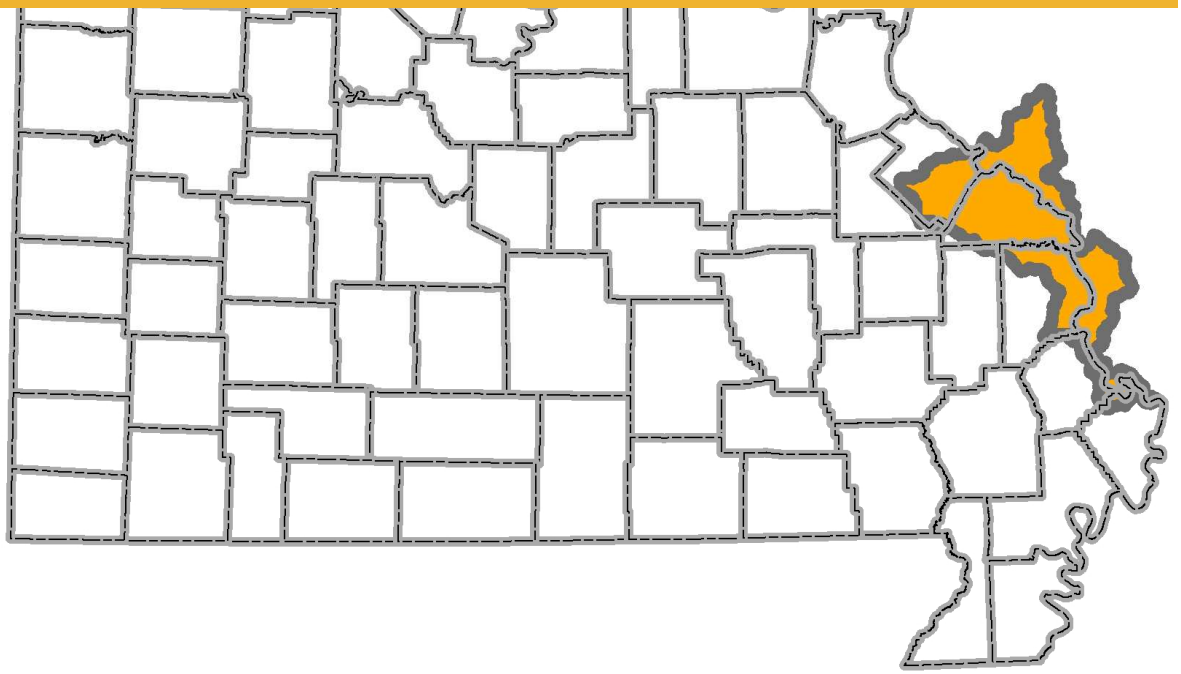
Our Missouri WATERS



Healthy Watershed Plan

Upper Mississippi-Cape Girardeau



The Missouri Department of Natural Resources seeks to improve the availability of water resource information to communities where impact to these water resources is felt most. The information presented in this summary is intended to increase awareness of how activities on land and in water have an influence on water resource quality and quantity. The department greatly values local input and engagement regarding the mission of ensuring safe and ample water resources, and will continue to seek local guidance to further focus department efforts and funding strategies for the betterment of *Our Missouri Waters.*

MISSOURI DEPARTMENT OF NATURAL RESOURCES

HUC-8: 10290106
January 2017

Upper Mississippi-Cape Girardeau

Healthy Watershed Plan

Our Missouri Waters

What is a watershed?

A watershed is an area of land defined by ridges, from which water flows into a particular lake, river, or wetland.

Focus Watershed

Our Missouri Waters includes 66 watersheds across the state. DNR has established a set of priority watersheds to focus on each year until all 66 watershed have been evaluated. The department identified the Upper Mississippi-Cape Girardeau as a priority to focus on in 2015-2016.

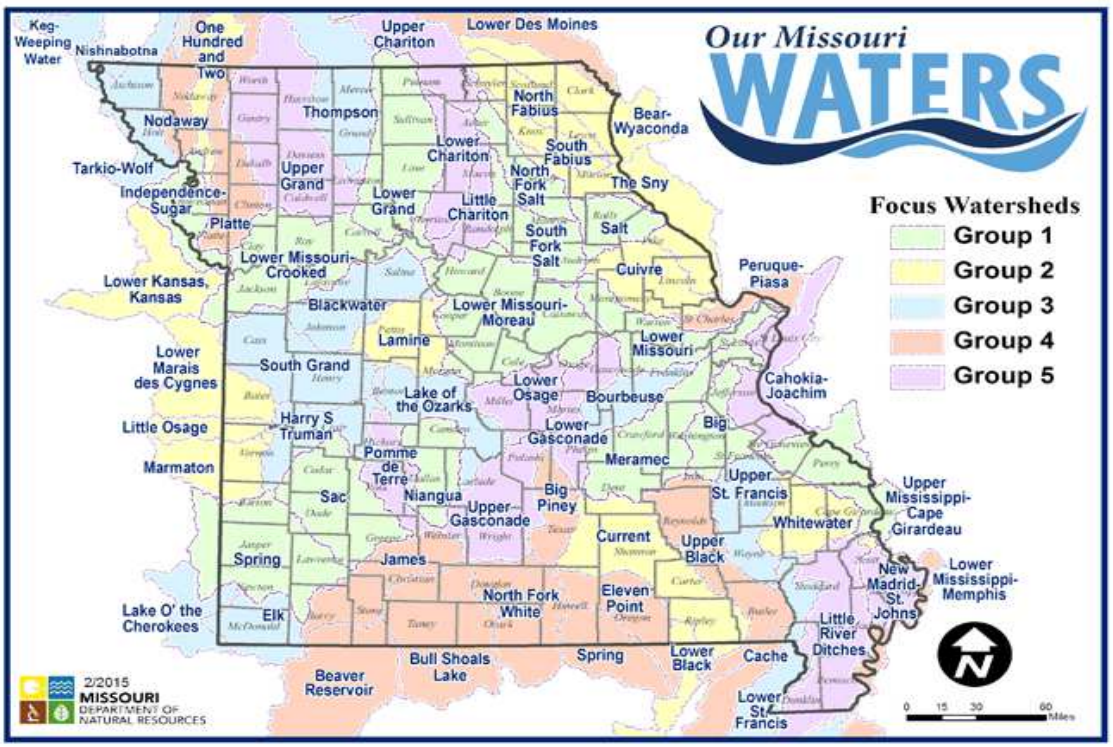
Watershed Advisory Committees

To help achieve the goals of OMW, DNR is supporting establishment of a local Watershed Advisory Committee (WAC) The WAC will inform priorities and promote activity that protects and improves the health of the watershed.

Missouri is blessed with natural streams, lakes, and rivers like no other in the nation. They play an essential role in the health and well-being of each Missourian and the economy of our state. We have made significant improvements to our state's water quality. To continue this progress, the Missouri Department of Natural Resources (DNR) has begun an initiative, called *Our Missouri Waters* (OMW), that will improve the way we protect and preserve our watersheds.

Water, like all natural resources, belongs to everyone. Clean and abundant water is important to all of us, and local participation is vital to successfully managing the water resources within a watershed. People who live and work in the watershed have the biggest stake in its health and need to be part of the process to determine the best way to address specific watershed management needs. The OMW approach builds local partnerships to develop a common understanding of the health and challenges of the watershed, identifies priorities and then works together with partners to achieve common goals.

This document explains the OMW approach in the Upper Mississippi-Cape Girardeau watershed, as well as other forums for working together to address the health of the watershed.



Upper Mississippi-Cape Girardeau

Healthy Watershed Plan

Purpose of Plan

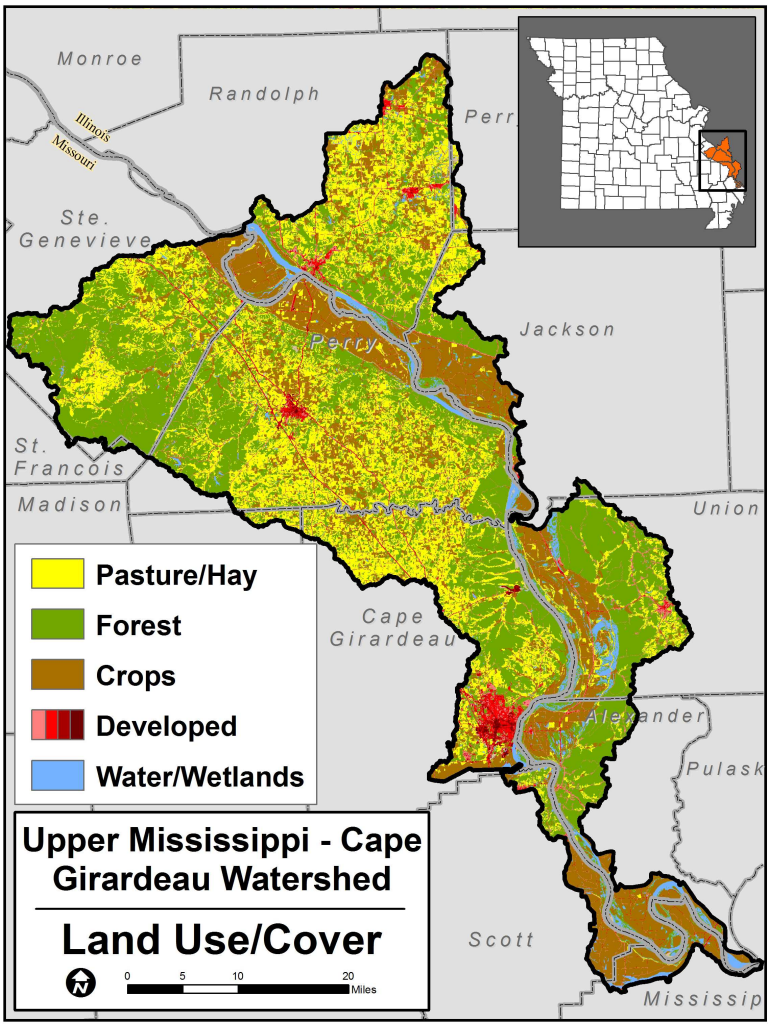
It is the hope that this document will guide future outreach and education efforts in the watershed, improve collaboration between stakeholders in the watershed, and support applying for and competing for funding for projects based on the recommendations of local stakeholders.

Note: The elements and statistics of this plan are for the Missouri side of the watershed only.

Introduction

Adequate water supplies are vital not only to human health and safety, but also to the prosperity of our communities and individuals within the watershed. Whether it is for crop irrigation, industrial manufacturing or residential use, water is at the core of human existence and sustainability. Upper Mississippi-Cape Girardeau is a unique watershed both geologically and culturally. Approximately 50,000 people within the watershed live in and around two cities, Cape Girardeau and Perryville. Land use in the watershed is split between three main uses; forestland at 39%, 25% in grassland, and 22% in crops; leaving the remaining 16% in developed or urban areas. Due to this composition, many stakeholders in the agricultural field were engaged in the plan process. Equally important was engaging municipalities due to their access to the large population centers. These two major users of water understand the resource differently and see each other differently than themselves.

The basin includes portions of seven counties in Missouri and crosses into Illinois. The largest population centers in the watershed consist of Cape Girardeau, Perryville and Scott City. Cape Girardeau County has experienced approximately 21% population growth from 1990 to 2012, Perry County's population has grown by 14% since 1990. There are currently two impaired streams within the watershed, Cinque Hommes and Brazeau creeks in Perry County. Pickle Creek in Ste. Genevieve County was removed from the impaired list during the development of the watershed plan.

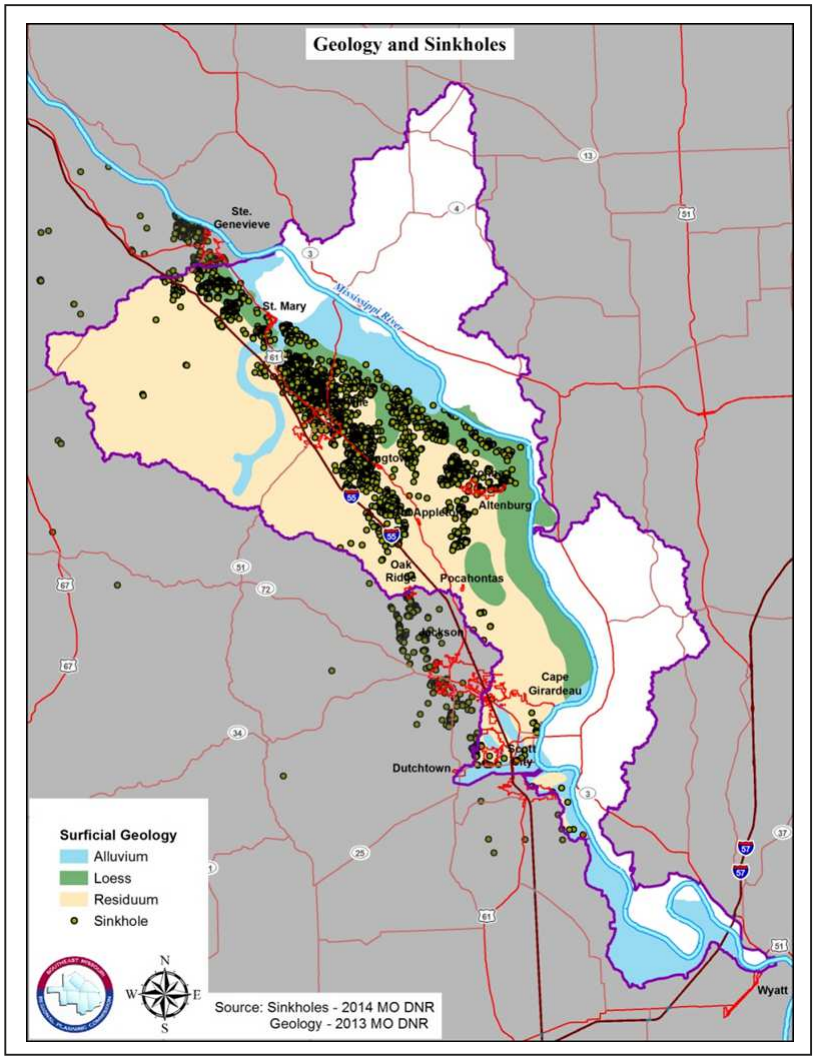


Our Missouri WATERS

Upper Mississippi-Cape Girardeau

Healthy Watershed Plan

Introduction (continued)



The geology of the basin is primarily karst and the bedrock is composed of permeable carbonates with 25% of the streams classified as losing and approximately 3,300 identified sinkholes. There are 650 known caves in Perry County alone. Moderate to severe groundwater contamination exists within a majority of the basin. Intense bedrock folding and faulting in localized parts of the basin create additional challenges for water supply, waste disposal and engineered structures.

Additionally, due to the prevalence of sinkholes, caves and an endangered cave dwelling species in Perry County, the plan process included representatives that contributed to the Perry County Community Conservation Plan. Their efforts precede the creation of the Upper Mississippi-Cape Girardeau Healthy Watershed Plan, and many of their objectives apply to the watershed as a whole.

Ground water quality is also a concern due to the karst environment filled with sinkholes, caves and losing streams. These areas are highly susceptible to non-point source pollution that can result in ground water contamination. Groundwater quality is also important to consider as the water levels in Ozark aquifer, which is the predominant aquifer in the state, are declining in areas of high use.

Our Missouri WATERS

Upper Mississippi-Cape Girardeau

Healthy Watershed Plan

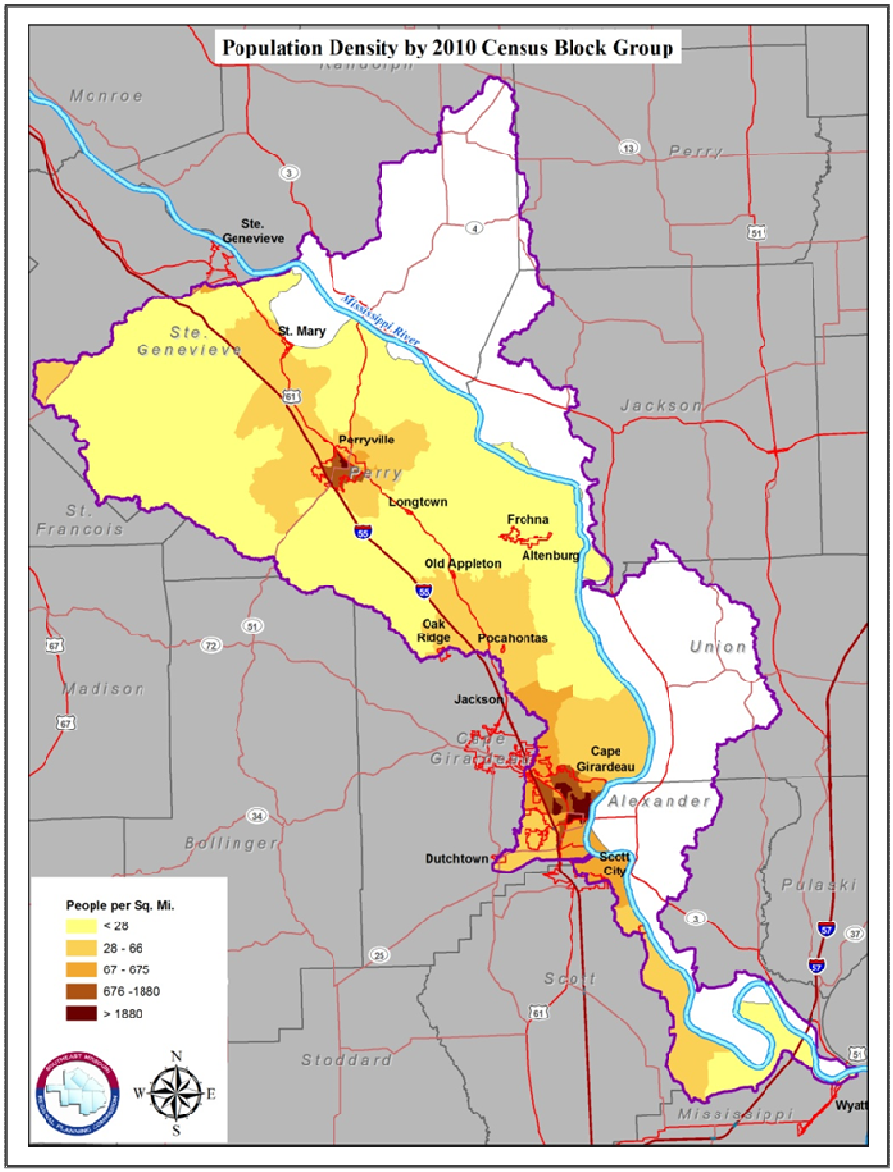
The Southeast Missouri Regional Planning Commission was the local leader in facilitating discussion for the Our Missouri Waters Collaborative Process.

The Southeast Missouri Regional Planning and Economic Development Commission offers planning and economic development services to its seven member counties of Bollinger, Cape Girardeau, Iron, Madison, Perry, St. Francois, and Ste. Genevieve and the municipalities within.

SEMO RPC works with a broad cross section of local governments, economic development organizations, civic groups, businesses and individual citizens.

Stakeholders

Southeast Missouri Regional Planning Commission has an existing relationship with the people and communities within the watershed. The Board of Directors is made of community leaders and elected officials from each of its seven counties — five of which are in the watershed (Bollinger, Cape Girardeau, Perry, St. Francois, Ste. Genevieve), 35 communities — nine of which are in the watershed (St. Mary, Perryville, Frohna, Altenburg, Oak Ridge, Pocahontas, Jackson, Cape Girardeau, Dutchtown), and community partners such as, Farmington Regional Chamber of Commerce, Bolllinger County PSWD, Ameren Missouri, Citizens Electric Cooperative, SEMO Regional Port Authority, New Bourbon Port Authority, First State Community Bank, and St. Francois County Industrial Development Authority, all of which are impacted by the economic health of the watershed.



The Board was invited to all watershed meetings, and presentations were given on a monthly basis. The Board provided guidance as to the issues their constituency had brought to light.

Stakeholders (continued)

The Environmental Quality Committee, a sub-committee of Southeast Missouri Regional Planning Commission, is made of elected officials, community leaders, local news outlets, and prominent regional industries, such as, Holcim US, Proctor & Gamble, TG, Gilster-Mary Lee, Mississippi Lime and others. The committee meetings were held on a quarterly basis; information about the Our Missouri Waters Collaborative Process was presented and issues and concerns were discussed.

Missouri Farm Bureau provided representatives from each county in the watershed, and the regional coordinator was in attendance for many of the meetings. Farm Bureau representatives were present at every meeting and discussed agricultural concerns and perceptions of farming.

USDA-Natural Resource Conservation Service (NRCS) and Perry and Cape Girardeau Soil and Water Conservation Districts (SWCD) were in attendance and aided in discussions on issues, best management practices, and funding opportunities.

University of Missouri-Extension personnel assisted in facilitating discussions and providing information. Several municipalities and other interested parties attended the meetings to lend to the discussion regarding issues and concerns within the watershed. Members of the local Chambers of Commerce also participated in the watershed plan process with an interest in the economic impact of the watershed plan.

Watershed Topics and Priorities

Stakeholders met on a near monthly basis from November 2015 to August 2016. The Board of Southeast Missouri Regional Commission contributed with monthly regularity between May 2015 and August 2016. The Environmental Quality Committee lent their voice to issues and concerns within the watershed quarterly between July 2015 and July 2016. The following topics and subtopics were discussed:

- Infrastructure Funding Sources: USDA-Rural Development, Community Development Block Grants (CDBG), Department of Economic Development-Division of Energy, DNR, Tax: possible economic development sales tax, bond
- Maintenance & Compliance: Inflow & Infiltration, Wastewater treatment facilities, water loss costs for small communities, sink holes, new Missouri Separate Storm Sewer Systems (MS4) requirements, rural community challenges, septic systems
- Regionalization: Prioritization between communities within the watershed
- Erosion/Stream bank stabilization: Identify problem areas, community engagement, need more education, facilitate joint cost share and technical assistance, streamline permitting between agencies, personal use of gravel for creeks/ streams, solutions
- Stormwater management: Urban/rural planning, National Pollutant Discharge Elimination System (NPDES), MS4, Stormwater Pollution Prevention Plan (SWPPP), Planning and Zoning/Ordinances, mitigation, reduction of impermeable surfaces, raingardens, low impact development, permeable parking lots, grass waterways, prevent stormwater from entering wastewater collection system, low-impact development incentives
- Economic Impact: Brownfield assistance for development, impaired stream stigma for business with effluent, new dischargers are prohibited until TMDL completed, industrial reuse of superfund sites, recreation, timber stand improvements, improve aquatic life
- Flooding: Infrastructure impact, erosion/stream bank stabilization, stormwater management, economic impact, resilience, Biggert-Waters Act, mosquitoes
- Regulation: US Army Corps of Engineers, Federal Emergency Management Agency, Environmental Protection Agency, DNR, County, City, nutrient trading
- Agriculture: Best Management Practices, no till programs, cover crop use, water livestock away from streams, livestock rotation

Our Missouri WATERS

Watershed Topics and Priorities (continued)

- Funding Opportunities: Soil and Water Conservation District (SWCD), DNR, Department of Conservation (MDC), Natural Resource Conservation Service (NRCS)
- Education: Residential overuse, Public Service Announcements, radio spots, social media, local stewardship, Perry County Community Conservation Plan, unintended consequences
- Impaired stream identification: Location, species test, identification of sources, using practices that are cost effective
- Recreation: Timber stand improvements, improve habitat for game animals, rainwater infiltration, overland flow reduction, restore riparian zones, improved aquatic life
- Monitoring: Impairment, specific methodology, authorized agencies, Water Quality Standards based on Classification, Total Maximum Daily Load (TMDL)

While a wealth of issues were discussed, over time the stakeholders were able to narrow down the issues to three major topics: Monitoring, Education and Sediment Movement. These issues seemed to encompass many of the key concepts of watershed preservation, quality and management.

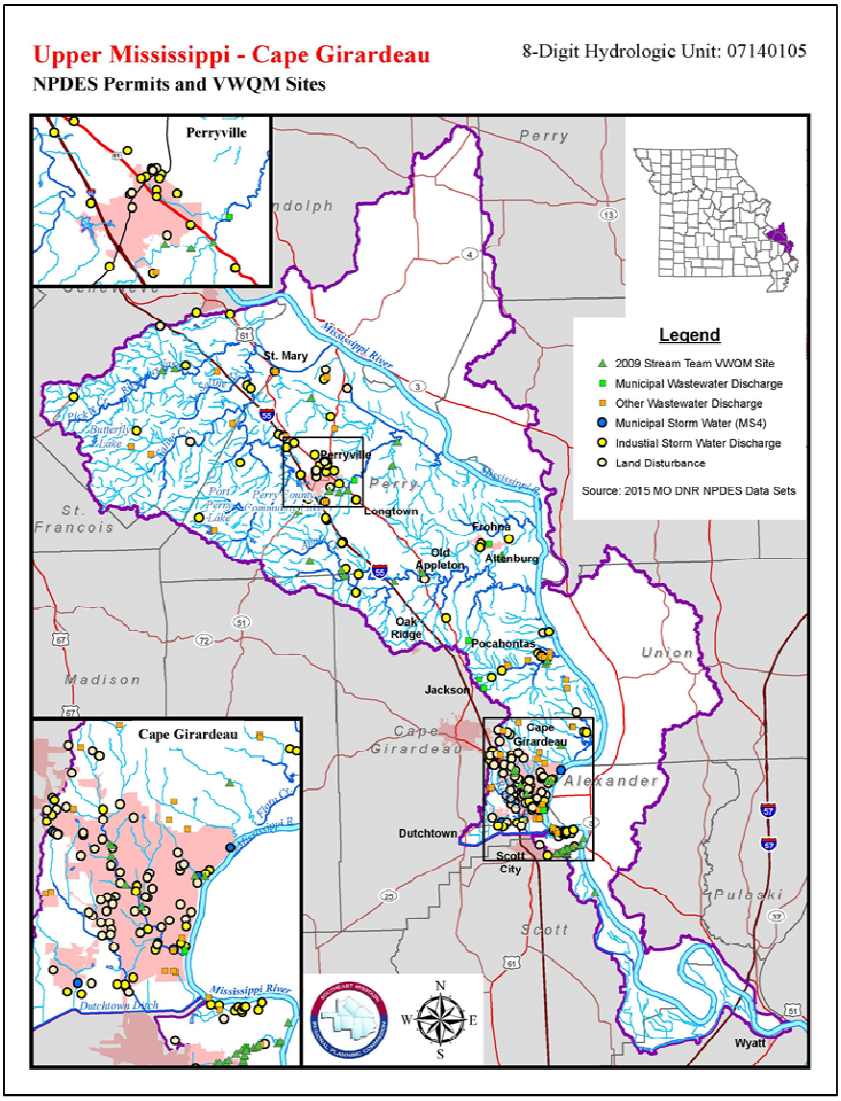
Upper Mississippi-Cape Girardeau

Healthy Watershed Plan

Primary Watershed Objectives

Monitoring:
Education is the first step of monitoring. The communities within the watershed must first be educated in the issues of concern surrounding the quality and quantity. Monitoring should be performed on impaired streams. The stakeholders agreed funding should be sought for additional fixed location monitoring devices to provide additional data.

Goal: Gather data on the quality and quantity of water within the water shed.



Objectives

- A minimum of 10 people receive Stream Team Water Quality Monitoring Intro training within the next year and 30 people by 2020. Have a Cooperative Stream Investigation trained individual within watershed by 2020.
- Share and support advanced training of individuals across multiple watersheds
- Provide water education opportunities to Boy Scouts, Girl Scouts, 4H, FHA, and other youth groups to support the growth of future stewards within the watershed.
- Engage and share information with Perry County regarding the health of the sinkholes and development activities affecting the karst system.
- Begin monitoring Cinque Homme and Brazeau creeks as funding is available.
- Research reclassifying Cinque Hommes to a level below current classification.

Our Missouri WATERS

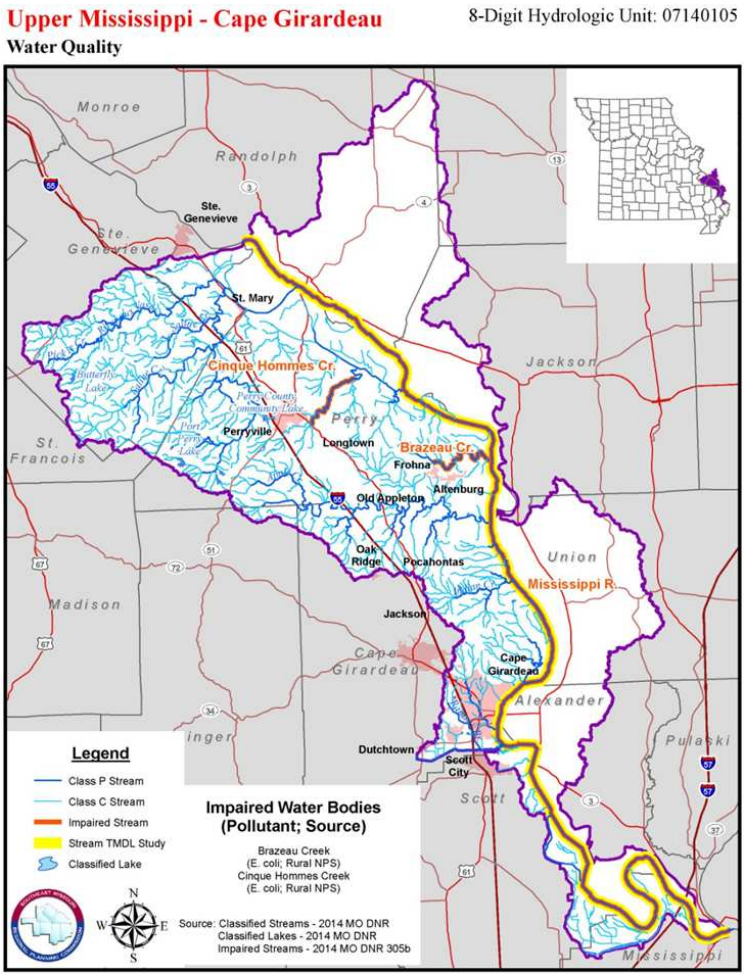
Primary Watershed Objectives (continued)

Education

Along with education on the monitoring process and techniques, watershed residents need to understand how all the components of a watershed work together, what water quality standards mean, and understanding how other users interact with water. This requires developing partnerships with local leaders, elected officials and state and federal agencies.

Goal: Increase resident water quality and quantity knowledge within the watershed.

Objectives



- Take advantage of County SWCD info-ed funding for community outreach programs on water quality education (particularly in residential lawn fertilization).
- Engage the youth to grow a sense of ownership in the watershed.
- Engage additional participation from stakeholder groups such as Karst Conservatory, SEMO University, and County Health Departments.
- Utilize MU Extension: Develop an education package to deliver Best Management Practices to lawn care professionals, developers and other industries.
- Involve City Administrators, City Council and County Commissioners in stewardship accomplishments and future goals.
- Establish signage to educate residents on their watershed boundaries to encourage stewardship. Signage: “You are entering Upper Mississippi-Cape Girardeau watershed”.
- Promote water quality funding opportunities within the watershed.
- Participate in local newsletters in getting information out: Missouri Farm Bureau, Mississippi Lime, Blogs and other social forums. Newsletters could be produced on a quarterly or bi-annual basis.
- Host field trips within the watershed to include, streambank erosion sites, tour of wastewater treatment, flooded sites and other areas of interest.

Our Missouri WATERS

Primary Watershed Objectives (continued)

Sediment Movement

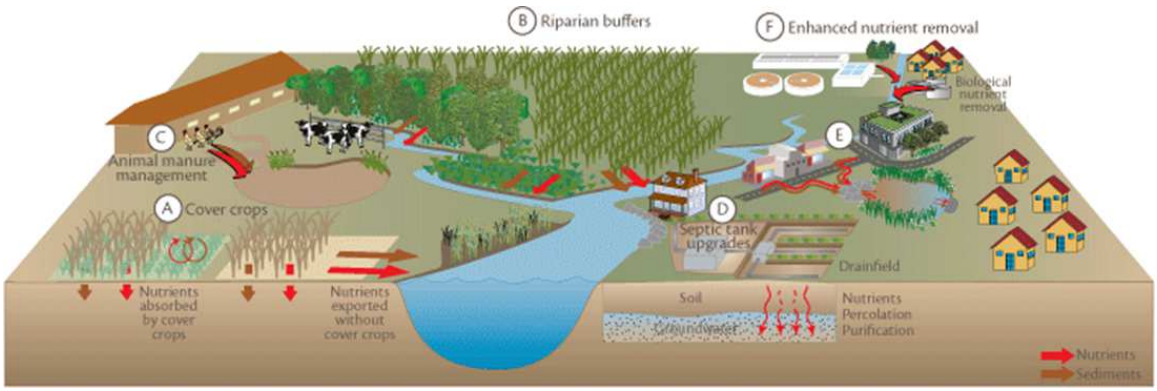
Sediment is a common pollutant of concern in watersheds. It was discussed that whether construction projects or agricultural production, the soil needs to stay on the field or in the yard. These are two completely different management practices within the watershed, so this issue was divided into two subcomponents: agriculture and construction.

Agriculture

Goal: Stop sediment from reaching the stream, which will also keep other pollutants out of the waterways.

Objectives

- Increase education on no-till practices. Get percentage of land in no till practices and measure over time. This data is available through NRCS and needs to be shared with stakeholders so users can better understand practices of other users.
- Increase cover crop education. Inform practitioners that some programs can go through an operator rather than a landowner.
- Coordinate with SWCD and MDC on streambank stabilization programs to increase the dissemination of information.
- Begin the conversation with agricultural users on nutrient management and best practices to prevent nutrients from entering waterways.
- Work with NRCS and SWCD to increase education on Best Management Practices, working with NRCS, MDC and SWCD in promoting funding opportunities and cost share programs within the watershed.



Primary Watershed Objectives (continued)

Construction
Goal: Stop soil loss and chemicals from reaching waterways.

Objectives

- Promote Best Management Practices in construction and work with municipalities to educate on health of the watershed. Highlight importance of silt fences in prevention of sediment movement.
- Work with municipalities and encourage enforcement of the Land Disturbance Permit and the use of Stop Work Orders for violators.
- Work with homeowners in replacement of on-site wastewater systems.
- Develop sinkhole policy(s).
- Promote the use of Low Impact Development wherever possible and the reduction of impermeable surfaces.
- Support the creation of green space in development projects.
- Promote stewardship and engagement opportunities in concert with Municipalities.

The stakeholder group identified many long-term challenges. Some of those challenges include nitrogen runoff, financial roadblocks and conflicts between user groups. The identified goals and objectives are not easily accomplished, but monitoring and education are a start in the prevention of sediment movement.

Our Missouri WATERS

Financial Information Assistance State of Missouri Programs

Drinking Water Operator Training Voucher Program

Vouchers may be used as payment for drinking water operator certification, examinations and renewals as well as voucher approved drinking water training.

Contact the Operator Certification Section at 800-361-4827.

Wastewater Treatment Operator Training Voucher Program

Vouchers may be used as payment for wastewater treatment operator certification, examinations and renewals as well as voucher approved wastewater treatment training.

Contact the Operator Certification Section at 800-361-4827.

Water Pollution Equipment Sales Tax Exemption

This is a tax incentive program available to individuals, corporations or any public entity purchasing machinery, equipment, appliances and devices used solely for the purpose of preventing, abating or monitoring water pollution.

Contact Missouri Department of Revenue at 573-751-5895.

Nonpoint Source Animal Waste Disposal Systems

A nonpoint source loan program developed in cooperation with the Department of Natural Resources, the Department of Agriculture, and the Missouri Agricultural and Small Business Development Authority. The program is designed to provide low interest financing to small producers for design and construction of animal waste treatment facilities. The program will finance 100 percent of the eligible costs.

Contact Missouri Agriculture and Small Business Development Authority at 573-751-2129.

Nonpoint Source Program

The Department of Natural Resources Nonpoint Source Program provides financial assistance for addressing nonpoint source pollution in watersheds. Funding is available for organizations to implement best management practices as detailed in their watershed management plan. Letters of intent for potential NPS projects are accepted on an ongoing basis.

Contact Missouri Department of Natural Resources at 573-751-4932.

Financial Information Assistance (continued)

Soil and Water Conservation Programs

Cost-Share Program
This program provides incentives for landowners to install conservation practices that prevent or control excessive erosion and protect water quality. Landowners can receive up to 75 percent of the estimated cost of the practice to be reimbursed after the practice has gone through a certification process.

Research and Monitoring
The department's Soil and Water Conservation Program also provides funding for university research, district benefits and administrative costs. The program receives no general revenue funding for soil and water conservation efforts.

Our Missouri Waters Regional Conservation Partnership Program
Our Missouri Waters Regional Conservation Partnership Program (RCPP) funds are available to eligible farmers and ranchers with an interest in soil and water conservation practices designed to improve soil health and water quality.

Contact Missouri Department of Natural Resources for more information at 573-751-4932.

USDA Programs

Conservation Stewardship Program
This program helps agricultural producers maintain and improve their existing conservation systems and adopt additional conservation activities to address priority resources concerns. Participants earn CSP payments for conservation performance—the higher the performance, the higher the payment.

Environmental Quality Incentives Program (EQIP)
This program provides financial and technical assistance to agricultural producers in order to address natural resource concerns and deliver environmental benefits such as improved water and air quality, conserved ground and surface water, reduced soil erosion and sedimentation, improved or created wildlife habitat.
Contact NRCS at 573-876-0911.

Conservation Reserve Program (CRP) and Continuous Conservation Reserve Program (CCRP)
This program provided financial and technical assistance to agricultural producers to remove marginal or sensitive area of cropland into permanent vegetation to reduce erosion, improve water quality and improve wildlife habitat.
Contact Farm Services Agency (FSA) at 573-876-0925

A Living Document - Status and Changes to this Plan

The local watershed advisory committee intends for this Healthy Watershed Plan to be a living document, meaning that it can be updated and revised as needed to reflect new information and ideas for the watershed. The local watershed advisory committee recognizes that this document will likely require periodic review in order for it to adequately reflect current issues, priorities, and recommendations for the watershed.

For Additional Information

If you would like additional information regarding this document, please contact Paden Grant, Regional Watershed Coordinator with the Department of Natural Resources, at (573) 840-9750

Information about the watershed can be found online at dnr.mo.gov/omw

Our Missouri WATERS

MISSOURI DEPARTMENT OF NATURAL RESOURCES